

[54] **SPRING-TYPE EXERCISER**

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[51] Int. Cl..... **A63b 21/00, A63b 23/02**

[58] Field of Search..... **272/83 R, 82, 76, 78, 57 R,**
272/62

[56] **References Cited**

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Primary Examiner—Richard C. Pinkham

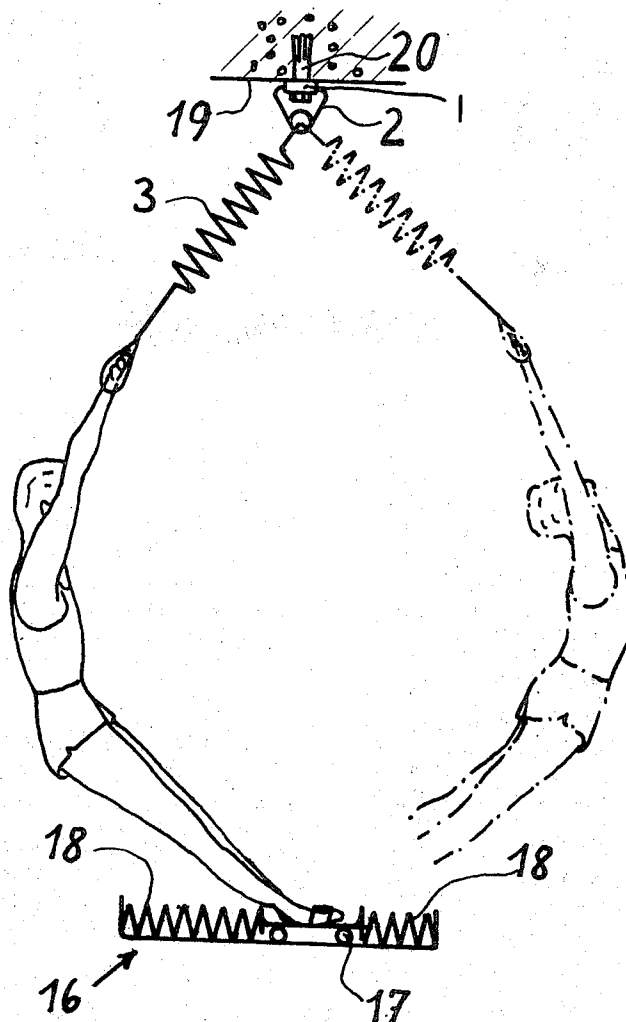
Assistant Examiner—William R. Browne

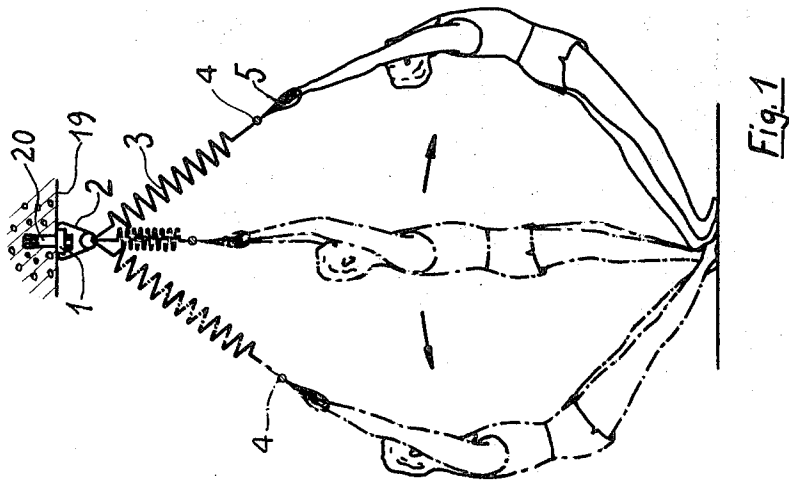
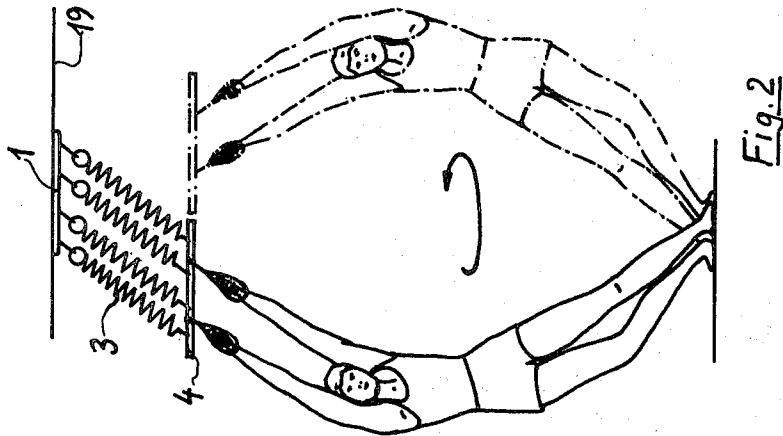
Attorney, Agent, or Firm—Karl F. Ross; Herbert Dubno

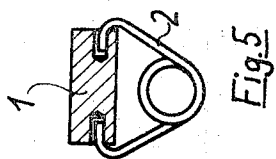
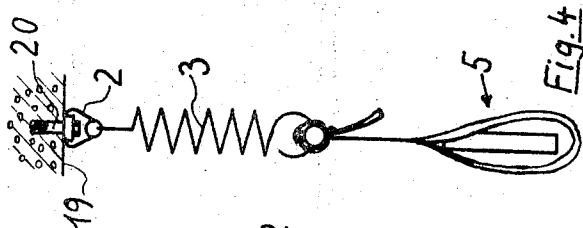
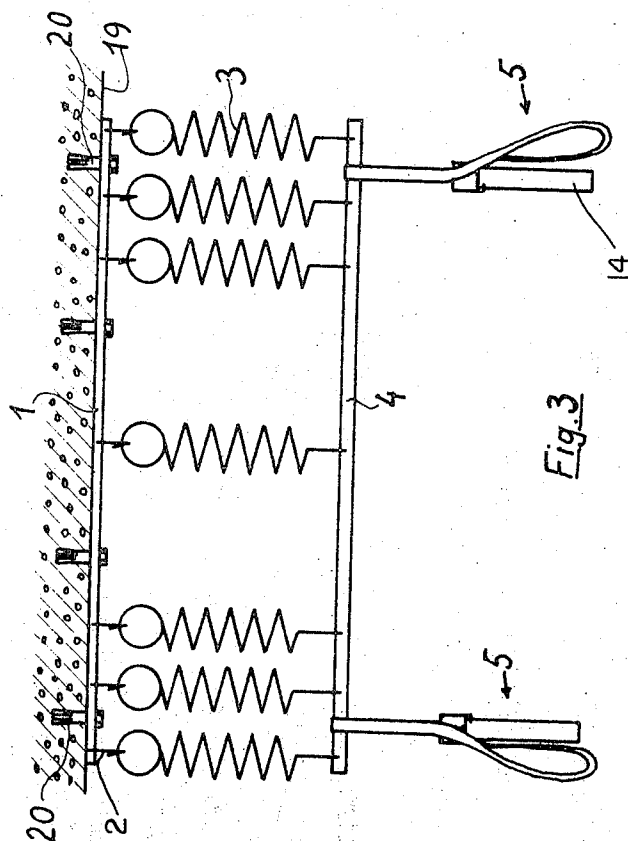
[57] **ABSTRACT**

Two handles are attached to a bar which is suspended by a plurality of resilient members from an overhead support and which is within reach of an erect person who may grip these handles to perform oscillatory or gyrating body motions at a natural frequency determined by the spring constant and body mass; the feet of the user may be positioned on a spring-centered mobile base that is reciprocally mounted. The bar may be hollow to receive therethrough a cord made up of the resilient members. The resilient members may be attached at the respective ends of the bar. The bar may also be secured by resilient members at points on the overhead support that are spaced apart by a distance greater than the length of the bar.

7 Claims, 14 Drawing Figures







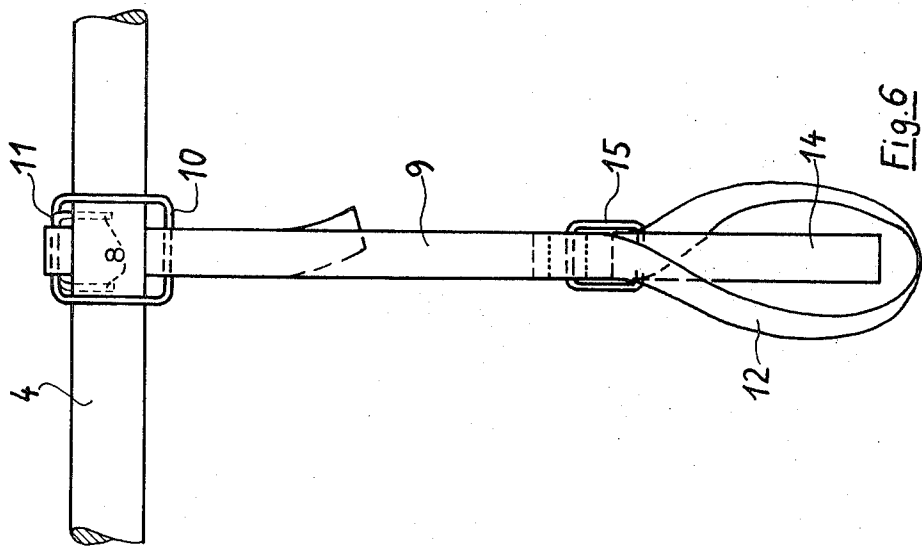


Fig. 6

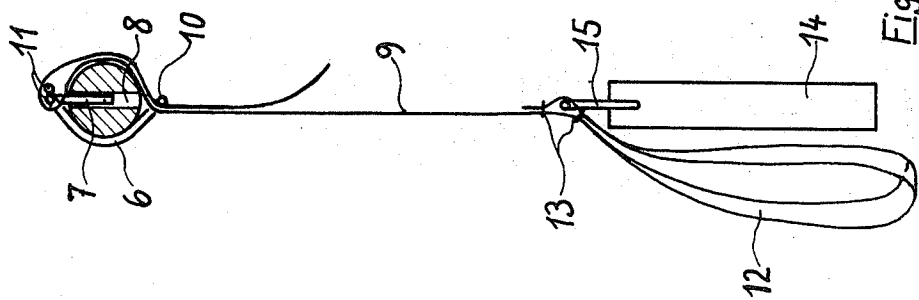
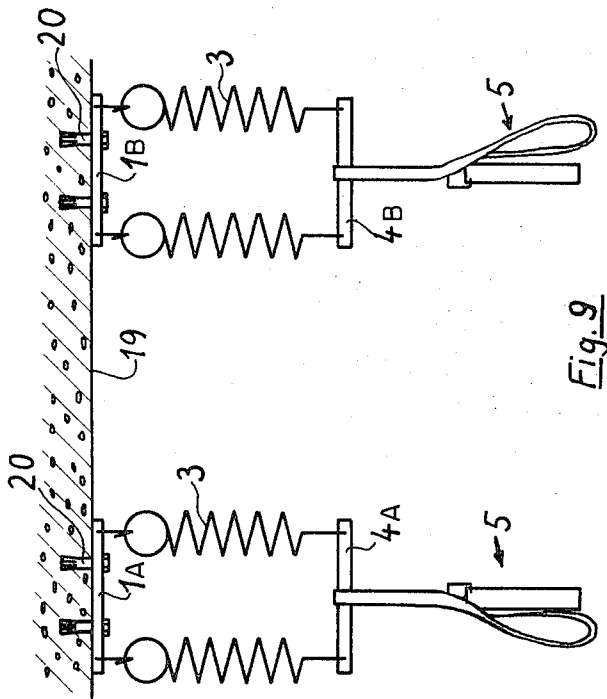
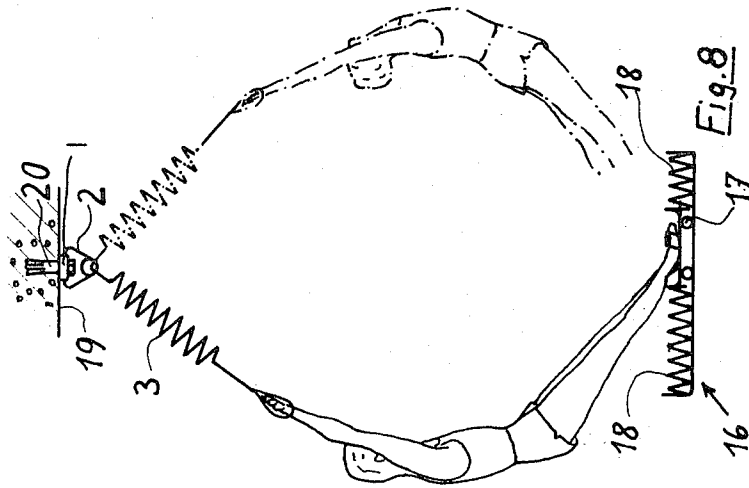


Fig. 7



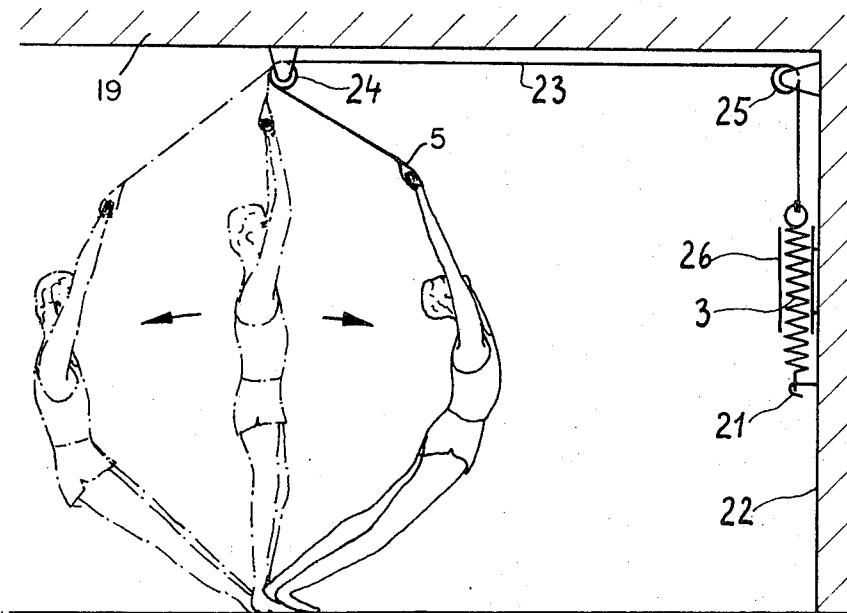


Fig. 10

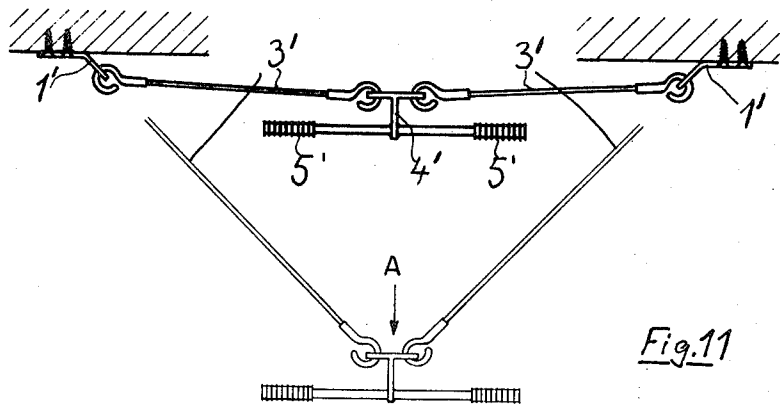


Fig. 11

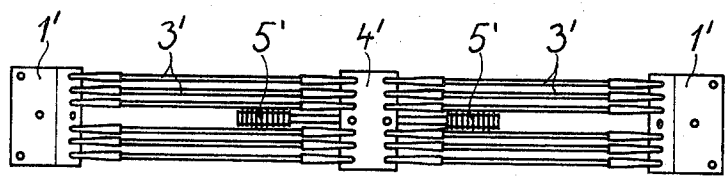


Fig. 12

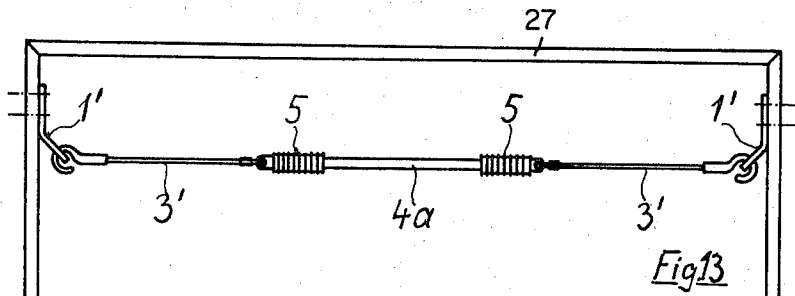


Fig. 13

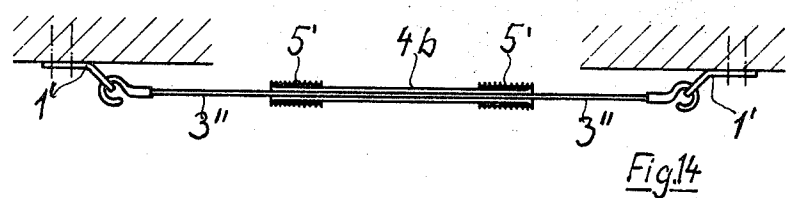


Fig. 14

SPRING-TYPE EXERCISER

FIELD OF THE INVENTION

My present invention relates to a body exerciser of the type wherein a pair of spring-loaded handles, anchored to a stationary structure, can be gripped by the hands of a user for the training and strengthening of body muscles.

BACKGROUND OF THE INVENTION

In certain devices of this description, the handles are anchored to a door or wall at about shoulder height to let a user exercise either his arm muscles, or standing at a fixed distance from the handle support while bending his elbows, or his leg muscles, by walking away from the support with arms outstretched. Either of these exercises involves only a part of the human body.

OBJECTS OF THE INVENTION

The general object of my present invention is to provide an improved device, of simple construction, designed to involve the entire body with simultaneous engagement of all four limbs in an exercise or a variety of exercises requiring no mechanical readjustments or complex programming.

A related object is to provide an exerciser of this character which subjects the limbs and the torso of the user to a stretching action, e.g., to help correct spinal deformities.

SUMMARY OF THE INVENTION

These objects are realized, in accordance with my invention, by mounting the handles on a spring-loaded support which is suspended from an overhead structure and swingable in at least one vertical plane, the handles in their normal (retracted) position being barely within reach of a person standing beneath that structure; as the person grips these handles, his or her body undergoes an oscillatory motion in the swing plane at a natural frequency determined by the spring constant of the support and by the mass of the person's body.

If the handle support is mounted for omnidirectional swinging, the oscillatory motion may expand into a gyration about a vertical axis defined by the point of suspension (or the geometrical center of an array of such points) and by the feet of the user planted on the floor directly below that point. In either case, virtually the entire body is involved in alternate stretching and relaxation with exercising of the affected muscles.

According to another feature of my invention, the feet of the user need not rest firmly on the floor but may be engaged by a mobile base, such as a pair of roller skates (which could be fixedly interconnected), mounted for limited reciprocation in the swing plane of the handle support against the restoring force of a set of springs or equivalent resilient means tending to center that base with reference to the suspension point.

BRIEF DESCRIPTION OF THE DRAWING

The above and other features of my invention will now be described in detail with reference to the accompanying drawing in which:

FIG. 1 is a side-elevational view of my improved body exerciser and of a user performing an oscillatory motion;

FIG. 2 is a view similar to FIG. 1, illustrating a gyratory motion;

FIG. 3 is an enlarged front view of the exerciser;

FIG. 4 is a side view of the exerciser drawn to the scale of FIG. 3;

FIG. 5 is a detail view drawn to a still larger scale, showing one of several fasteners included in the device;

FIG. 6 is a front view, on a larger scale, of one of two handles shown in FIG. 3;

FIG. 7 is a side view of the handle, drawn to the scale of FIG. 6;

FIG. 8 is a view similar to FIG. 1, illustrating a mobile base vertically aligned with the overhead exerciser mounting;

FIG. 9 is a view similar to FIG. 3, illustrating a modification;

FIG. 10 is another view similar to FIG. 1, showing a further embodiment;

FIG. 11 is a front-elevational view of still another embodiment;

FIG. 12 is a top plan view of the embodiment of FIG. 11;

FIG. 13 is a view similar to FIG. 11, showing still another embodiment; and

FIG. 14 is a side-elevational view, partly in section, of a modification of the embodiment of FIG. 13.

As illustrated in FIGS. 1 - 7, an exerciser according to my invention comprises an overhead structure 1, specifically a flat rail, secured to the ceiling 19 of a room by anchor screws 20. Spring clips 2 are removably engaged in lateral bores of the rail 1 and carry respective coil springs 3 which are hooked into these clips at their upper ends and are secured at their lower ends to a horizontal supporting member in the form of a round bar 4. Two handles 5 are attached, at spaced locations, to the bar 4 so as to be just barely within reach of a person standing erect on the floor below when the springs 3 are fully contracted as shown in the central position of FIG. 1; the user gripping these handles can then swing his body to the left and to the right, with his feet remaining rooted to the floor, so as to oscillate between the two illustrated extreme positions at a natural frequency determined by the mass of his own body (the mass of the exerciser itself being relatively negligible) and the elasticity of the spring assembly 3.

As illustrated in FIG. 2, the user — without lifting his feet off the spot occupied in FIG. 1 — can set his body in revolving motion, with alternate contraction and expansion of individual springs 3 whose elasticity therefore controls the angular frequency. As with the oscillatory movement of FIG. 1, there occurs a periodic force transfer between the body muscles and the springs.

As best shown in FIGS. 3-7, each handle 5 comprises the looped lower end of a strap 9 which is wound about lower and upper legs 10, 11 of a buckle 6 bent partly around the bar 4; the latter is provided with vertical bores 8 receiving the ends 7 of the wire forming the buckle. With the free end of the strap 9 also threaded through the buckle, the effective length of this strap can be readily adjusted. The handle further includes a handgrip 14 which is fastened by an eye 15 to the strap 9 with the aid of stitching 13 holding the loop-forming strap end in place.

As illustrated in FIG. 8, the user may also step onto a mobile base 16 comprising a wheeled platform 17,

constituted by a pair of interconnected roller skates strapped to the user's feet, which is under pressure from counteracting springs 18 tending to keep it centered below the mounting rail 1. As the body of the user swings back and forth, the legs undergo limited oscillations in the same plane but in phase opposition to the motion of his body.

FIG. 9 shows the possibility of subdividing the mounting rail 1 of the preceding Figures into two longitudinally spaced sections 1A, 1B, with corresponding subdivision of the bar 4 into two halves 4A, 4B each supporting one of the handles 5.

FIG. 10 shows part of a room with a relatively low ceiling 19 leaving insufficient space for the accommodation of tension springs 3 between that ceiling and the elevated handles. In that instance the overhead structure comprises a set of deflecting rollers 24 (only one visible) for the guidance of respective cables 23 which also pass around further rollers 25 and down a wall 22 into engagement with coil springs 3 received in guide sleeves 26 and anchored to wall hooks 21. The free ends of cables 23 carry the handles 5, either directly or through the intermediary of a common rod 4 as in FIG. 3. Naturally, the mobile base 16 of FIG. 8 could also be used in this case, underneath rollers 24.

In FIG. 11 I have shown an embodiment in which the handles 5' are the extremities of a T-bar 4' hooked onto a pair of elastic links 3', such as rubber cords, which are anchored to a pair of mounting plates 1' on the ceiling at locations spaced apart by a distance substantially greater than the length of the bar 4'. In the retracted position illustrated in heavy lines, these links are nearly horizontal; when the T-bar 4' is pulled down, as indicated in lighter traces (arrow A), these links include a progressively smaller angle with each other. FIG. 12 shows that there may be a plurality of such cords on each side of the web of T-bar 4' to which they are fastened. FIG. 13 depicts a direct attachment of a pair of such cords 3' to the handles 5' at the ends of a round bar 4a resembling the bar 4 of preceding Figures; the mounting plates 1' are here secured, at suitable elevation, to the jambs of a door 27. In FIG. 14 a tubular bar 4b is used, the links 3'' here forming part of a single elastic cord passing longitudinally through that bar.

Within the limits of compatibility, various features shown in different Figures may be combined with or

substituted for one another. These and other modifications, readily apparent to persons skilled in the art, are intended to be embraced within the spirit and scope of my invention except as otherwise limited in the appended claims.

I claim:

1. A body exerciser comprising an overhead structure, and spring-loaded support means suspended so as to permit unrestricted lateral pulls in different directions by a user, said support means being provided with a pair of handles barely within reach of a person standing erect under same, said support means being movable by the person in a vertical direction with reference to said structure and permitting the person gripping said handles to carry out an oscillatory body motion at a natural frequency determined by the spring constant of said support means and by the mass of the person's body said support means comprising only one elongated horizontal member, said handles being at spaced-apart positions on said horizontal member, said member being a bar having connected thereto a plurality of ends of respective elastic elements, the opposite ends of said elastic elements being connected to said overhead structure at spaced-apart locations.

2. A body exerciser as defined in claim 1 wherein said handles are provided with releasable fastening means securing same to said bar.

3. A body exerciser as defined in claim 2 wherein said fastening means include straps of adjustable length.

4. A body exerciser as defined in claim 1 wherein said elastic elements are coil springs.

5. A body exerciser as defined in claim 1 wherein said elastic elements are anchored to said overhead structure at locations spaced apart by more than the length of said bar.

6. A body exerciser as defined in claim 3 wherein said bar is tubular, said elastic elements being part of a cord passing longitudinally through said bar.

7. A body exerciser as defined in claim 1, further comprising mobile base means underneath said structure engageable by the feet of the person and reciprocally movable by the person during an exercise, said base means being provided with resilient centering means opposing its reciprocation.

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